

Serial No.: 10/666,970
Art Unit: 2113

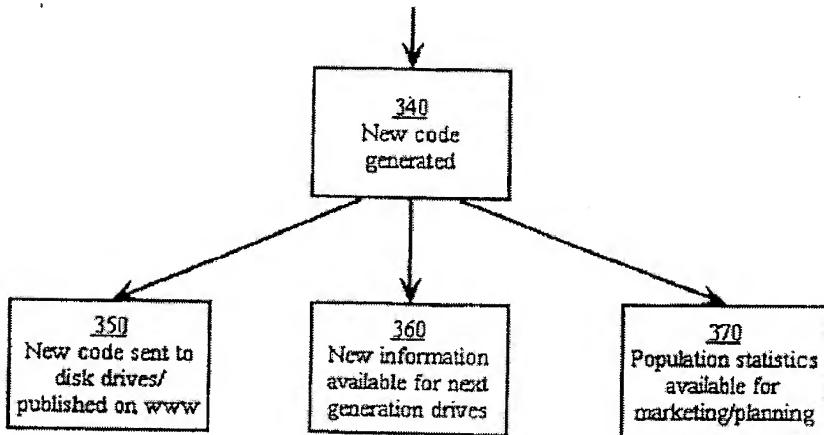
REMARKS

Claims 1-17, 19-24, 26-29, 31-38, and 41-44 are currently pending. Claim 3 has been amended for clarification. Claim 30 has been canceled. Claim 29 has been amended to incorporate subject matter from claims 30 and 31. Claim 34 has been amended to incorporate subject matter from claim 36. The amendment of claims 29 and 34 presents these claims in a manner similar to other pending independent claims. Claims 1, 9, 20, 29, 34, and 41 have been amended and are supported by page 7, lines 20-24. It is respectfully submitted that no new matter has been added.

The Patent Office has asserted that new matter has been introduced into the specification because of the insertion of "(e.g., the world wide web)" on page 7, lines 26-27. Page 7, line 20, through page 8, line 6, is recited immediately below:

Firstly, (block 350) new microcode with improved error recovery may be made available for existing drives, targeted at the unexpected failure mode. Also new microcode may be provided which is more tolerant of certain error events than the original drive microcode and which will not call for unnecessary early drive replacement, where it has been established that the original algorithm was too aggressive, thus reducing service cost. In both of these cases the new microcode may be available for download via the internet 20/220, or may be sent from the manufacturers server 10/210 directly to the software agent 50/150 (and to each software agent of the field population of disk drives). In this way the predictive failure analysis algorithms of each disk drive in the field may be continually improved rather than being fixed from the date of manufacture. Secondly, (block 360) a detected failure mode may be used to provide design changes in the microcode or manufacturing methods for new drives, so as to reduce the likelihood of the detected failure mode occurring in the future.

A relevant portion of Figure 4 of Applicant's filed application is reproduced immediately below:



It is clear that block 350 discloses "New code sent to disk drives/ published on www." Page 7, lines 26-28, which refers to block 350, disclose "the new microcode may be available for download via the internet 20/220, or may be sent from the manufacturers server 10/210 directly to the software agent 50/150 (and to each software agent of the field population of disk drives)." The text on page 7, lines 26-27, has been further amended to recite "the new microcode may be available for download via the internet (e.g., through the world wide web - www) 20/220." Block 350 matches up to the text on page 7, lines 26-28, such that it is clear that microcode may be obtained through an internet via the "www," i.e., the world wide web.

Furthermore, MPEP § 2163.07 states:

By disclosing in a patent application a device that inherently performs a function or has a property, operates according to a theory or has an advantage, a patent application necessarily discloses that function, theory or advantage, even though it says nothing explicit concerning it. The application may later be amended to recite the function, theory or advantage without introducing prohibited new matter. In re Reynolds, 443 F.2d 384, 170 USPQ 94 (CCPA 1971); In re Smythe, 480 F.2d 1376, 178 USPQ 279 (CCPA 1973). "To establish inherency, the extrinsic evidence 'must make clear that the missing descriptive matter is necessarily present in the thing described in the reference, and that it would be so recognized by persons of ordinary skill. Inherency, however, may not be established by probabilities or possibilities. The mere fact that a certain thing may result from a given set of circumstances is not sufficient.'" In re

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Robertson, 169 F.3d 743, 745, 49 USPQ2d 1949, 1950-51 (Fed. Cir. 1999) (citations omitted).

The Patent Office has rejected claims 3, 29, and 34-36 under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement.

Please see above discussion regarding support for the claimed subject matter of the “world wide web.” It is respectfully requested that the Patent Office remove its rejection of claims 3, 29, and 34-36 under 35 U.S.C. 112, first paragraph.

The Patent Office rejected claims 1-4, 6-12, 14, 15, 17-20, 22, 23, 25, and 27-40 under 35 U.S.C. 102(b) as being anticipated by Nolet, U.S. Patent No. 6,138,249.

For a claim to be anticipated, each and every non-inherent limitation must be disclosed in a single reference. MPEP 2131.

Claim 1 recites

A server for improving predictive failure attributes of distributed devices, comprising: a receiver for receiving, via a network, failure analysis data from individual ones of a plurality of distributed devices; where each device of said plurality of distributed devices comprises failure analysis software comprising a predictive failure analysis algorithm arranged for collecting failure analysis data of said distributed device and a communications device arranged for transmitting said failure analysis data to said network; wherein said server is arranged for analyzing said failure analysis data and for providing in response to the analysis an updated predictive failure analysis algorithm to the plurality of distributed devices, wherein each of said plurality of distributed devices is coupled to said network, **wherein the updated predictive failure analysis algorithm is provided to the plurality of distributed devices in the form of a first microcode that is provided from the server to be used instead of a second microcode previously used by the plurality of distributed devices, wherein the first microcode and the second microcode have different tolerances of certain error events.**

Claim 9 recites

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A device comprising: a predictive failure analysis algorithm arranged for collecting failure analysis data of said device; and, a communications device coupled to said predictive failure analysis algorithm arranged for transmitting said failure analysis data to a remote server via a network, wherein said remote server is arranged for analyzing said failure analysis data received from said device and from other devices and for providing an updated predictive failure analysis algorithm to the device and the other devices, wherein **the updated predictive failure analysis algorithm is provided to the device in the form of a first microcode that is provided from the remote server to be used instead of a second microcode previously used by the device and the other devices, wherein the first microcode and the second microcode have different tolerances of certain error events.**

Claim 17 recites

A method for performing predictive data analysis using a central server, said method comprising: collecting failure analysis data in individual ones of a plurality of distributed devices in which each of the distributed devices uses a predictive failure analysis algorithm; receiving said failure analysis data at the central server from a network coupled to each device of said plurality of distributed devices; analyzing said failure analysis data received from said each device at the central server; and in response to the analysis, providing an updated predictive failure analysis algorithm from the central server to the distributed devices, wherein **the updated predictive failure analysis algorithm is provided to the plurality of distributed devices in the form of a first microcode that is provided from the central server to the plurality of devices to be used instead of a second microcode previously used by the plurality of devices, wherein the first microcode and the second microcode have different tolerances of certain error events.**

Claim 29 recites

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A computer program comprising computer readable program code stored on a computer readable medium for performing failure analysis of a plurality of disk drives that comprise a part of at least one data storage system, comprising first program code for collecting failure analysis data from individual ones of said disk drives and for transmitting said collected failure analysis data to a central server via a network and second program code, executed at said central server, for analyzing said failure analysis data and deriving an updated predictive failure analysis algorithm therefrom, where said updated predictive failure analysis algorithm is downloaded to said plurality of disk drives via the network, wherein **the updated predictive failure analysis algorithm is provided to the plurality of disk drives in the form of a first microcode from the central server to be used instead of a second microcode previously used by the plurality of disk drives, wherein the first microcode and the second microcode have different tolerances of certain error events.**

Claim 34 recites

A computer program comprising computer readable program code stored on a computer readable medium for performing failure analysis of a plurality of disk drives that comprise a part of at least one data storage system, comprising first program code, executed by a central server, for receiving, via a network, failure analysis data from said at least one data storage system for analyzing said failure analysis data and for deriving an updated predictive failure analysis algorithm therefrom, where said updated predictive failure analysis algorithm is downloaded to said plurality of disk drives via said network, where said updated predictive failure analysis algorithm is downloaded to said plurality of disk drives via the network, wherein **the updated predictive failure analysis algorithm is provided to the plurality of disk drives in the form of a first microcode to be used instead of a second microcode previously**

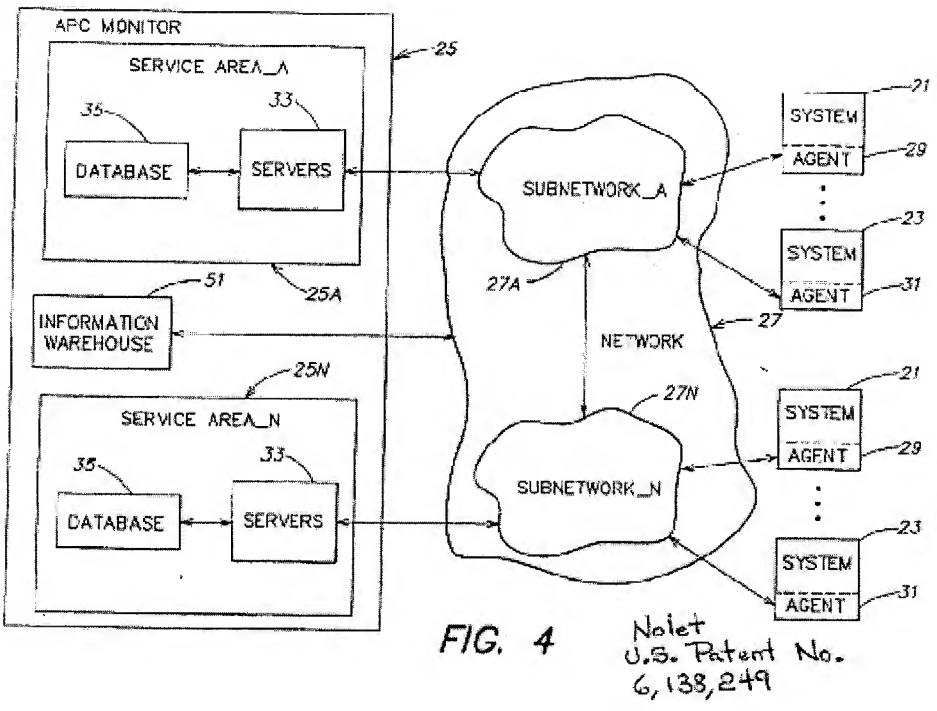
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used by the plurality of disk drives, wherein the first microcode and the second microcode have different tolerances of certain error events.

Claim 41 recites

A system for monitoring performance of a plurality of distributed devices via a network, comprising: a network; a central server having a monitoring capability, the central server being coupled to the network; a plurality of distributed devices which are coupled to the network and which are monitored by the central server via the network, each of the plurality of distributed devices having a failure data analysis capability provided by a predictive failure analysis algorithm of the corresponding distributed device, each of the plurality of distributed devices providing predictive failure data to the central server via the network, wherein **the central server modifies the predictive failure analysis algorithm in the form of a first microcode based on the predictive failure data to provide an updated predictive failure analysis algorithm in the form of a second microcode previously used by the plurality of distributed devices, wherein the first microcode and the second microcode have different tolerances of certain error events.**

In an exemplary embodiment of Applicant's invention, failure analysis data is provided by distributed devices and, responsive to collected failure analysis data, the central server may send an updated predictive failure analysis algorithm to one or more of the distributed devices (see page 7, line 11, through page 8, line 10). Applicant has disclosed, page 1, lines 16-21, "However with time a point may arrive at which the unrecovered error rate becomes unacceptably high, or the number or severity of the recovered errors may become symptomatic of an impending total failure. Predictive failure analysis algorithms within the disk drive firmware are used to estimate this point and to generate alerts to users, informing them that a service action should be scheduled to replace the hardware which may be about to fail."



Nolet does not disclose failure analysis data from a distributed device nor an updated predictive failure analysis algorithm from a central server to a plurality of distributed devices. Nolet (abstract) discloses a method and apparatus for monitoring a plurality of data processing systems from a monitoring system and responding to service requests by a data processing system by transmitting a data processing system resource update or transmitting information back to the requesting data system indicating if the data processing system resource is up to date (col. 6, lines 16-29). In Nolet (col. 6, lines 48-67), a failing data processing system may identify a nature of the failure and broadcast a service request from the failing data processing system to the monitoring system. Nolet discloses agents provide updates to an adaptive process control (APC) monitor (col. 8, lines 57-64) and that the process manager may broadcast information to the monitored systems to automatically update the software on those systems (col. 17, line 50, through col. 18, line 39; col. 19, lines 21-25). Nolet also discloses a customer service facility that enables software updates to be made to the data processing system automatically (col. 17, lines 50-58), such as through service requests from the agent of a data processing system (col. 17, line

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62, through col. 18, line 7), but does not disclose or suggest failure analysis data being provided from a distributed device nor an updated predictive failure analysis algorithm being provided from a central server to the plurality of distributed devices.

The Patent Office, in the Final Office Action dated November 27, 2006, page 4, lines 4-9, asserts

where each device of said plurality of distributed devices comprises failure analysis software comprising a predictive failure analysis algorithm arranged for collecting failure analysis data of said distributed device (column 8, lines 29-48, wherein each device has a software agent that tests/monitors the device and transmits that information; column 1, line 62 – column 2, line 8, wherein, the collected data at the distributed devices can be used for predicting further problems in the manufacturing process).

Nolet does not disclose each device comprised of a predictive failure analysis algorithm, as claimed, where the predictive failure analysis algorithm estimates a point may arrive at which the unrecovered error rate becomes unacceptably high, or the number or severity of the recovered errors may become symptomatic of an impending total failure, as disclosed. The passages relied upon by the Patent Office disclose test, monitoring, and transmitting, but do no disclose predicting.

Furthermore, whereas Nolet discloses database updates, file updates, list of files to be monitored updates, and information updates, Nolet does not disclose that the updated predictive failure analysis algorithm in the form of a first microcode that is used instead of a second microcode previously used by the plurality of distributed devices.

Also, Nolet does not disclose or suggest that the first and second microcodes have different tolerances of certain error events.

Thus, Nolet does not anticipate 1-17, 19-24, 26-29, 31-38, and 41-44.

Claim 7 recites “said intermediary software agent is installed on a local server.”

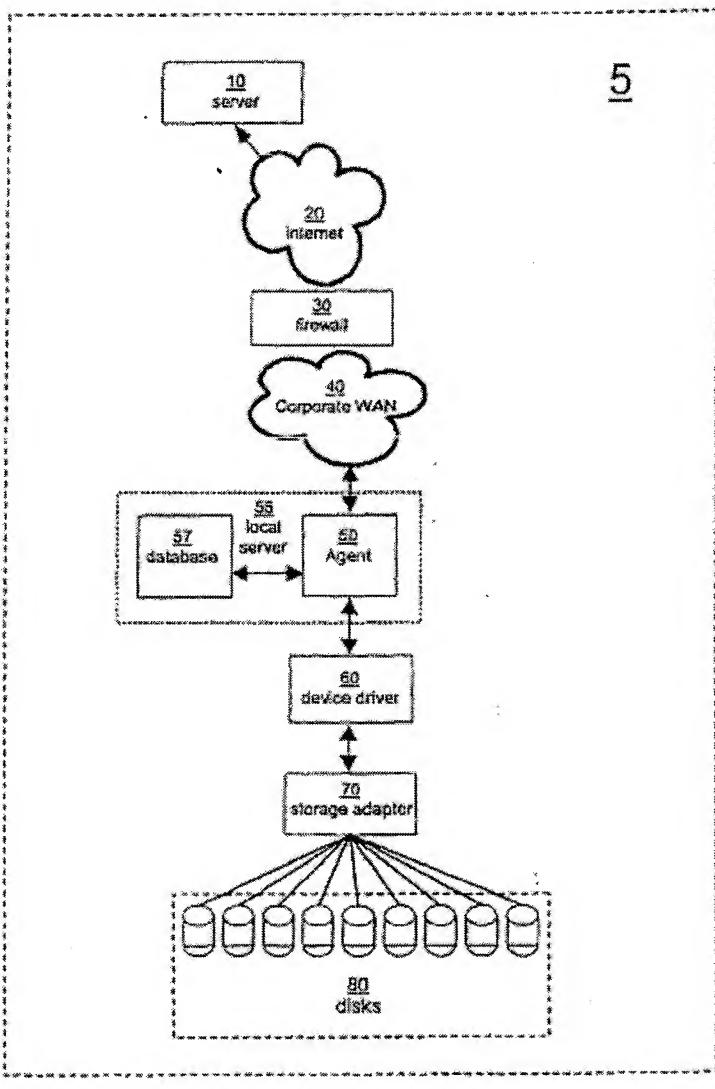
Claim 15 recites “said intermediary software agent is installed on a local server.”

Claim 22 recites “said each device is coupled to said network via an intermediary software agent installed on a local server.”

Claim 23 recites "said intermediary software agent is installed on a local server."

FIG. 1

Applicant



Nolet does not show a local server on the same side of the network as the distributed devices 21, 23, 29, 31 and does not disclose such, contrary to the Patent Office's assertions regarding column 9, lines 57-59, of Nolet. Nolet, column 9, lines 57-59, discloses "The services that respond to service requests broadcast over the network 27 by the agents 29, 31 (FIG. 2) can

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be implemented simply as a program, run on a PC or other device that implements the server, that is idle and awaits an appropriate broadcast request to initiate the program.” The services referred to in this sentence are not between a distributed device and the network but are disposed across the network from any distributed devices because the services respond to service requests broadcast over the network by the agents 29, 31 (see Figure 1). Applicant’s Figure 1 shows the local server 55 on the same side of the network as the distributed devices 80.

As Nolet does not disclose each device is coupled to said network via an intermediary software agent installed on a local server or a local server upon which the intermediary software agent is installed, Nolet does not anticipate claims 7, 8, 15, 16, 22, 23, or 24.

The Patent Office rejected claims 5, 13, 16, 21, 24, and 26 as being unpatentable under 35 U.S.C. 103(a) over Nolet, in view of Ballard, U.S. Published Patent Application No. 2003/0088538.

Ballard is recited by the Patent Office to teach the failure information provides an indication of operating lifespan of said plurality of distributed devices, the central server may be a manufacturers server, and a firewall. Ballard does not disclose or suggest failure analysis data being provided from a distributed device, an updated predictive failure analysis algorithm being provided from a central server to the distributed device, the updated predictive failure analysis algorithm is provided to the plurality of disk drives in the form of a first microcode to be used instead of a second microcode previously used, or first and second microcodes that have different tolerances to error events. Because Ballard does not remedy the deficiency of Nolet, Nolet in view of Ballard does not make obvious claims 5, 13, 16, 21, 24, or 26.

The Patent Office is respectfully requested to reconsider and remove the rejections of the claims under 35 U.S.C. 102(b) based on Nolet and 35 U.S.C. 103(a) based on Nolet and Ballard, and to allow all of the pending claims 1-17, 19-24, 26-29, 31-38, and 41-44 as now presented for examination. An early notification of the allowability of claims 1-17, 19-24, 26-29, 31-38, and 41-44 is earnestly solicited.

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Respectfully submitted:

Walter J. Malinowski

Walter J. Malinowski

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Date

Reg. No.: 43,423

Customer No.: 29683

HARRINGTON & SMITH, LLP
4 Research Drive
Shelton, CT 06484-6212

Telephone: (203) 925-9400, extension 19
Facsimile: (203) 944-0245
email: wmalinowski@hspatent.com

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